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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,059	04/21/2005	Mariko Hirai	052453	6198

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WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036

EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,059	HIRAI ET AL.	
	Examiner	Art Unit	
	Sow-Fun Hon	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-22 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 21 April 2005 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/07,11/06,4/05.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-3, 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Independent claim 1 recites a "transmittance of 88% or more" which should be rewritten as "light transmittance of 88% or more" for clarity.

X-References from PCT

2. The X-references from the national stage application PCT/JP03/13349 are not used as anticipatory references because the claims appear to have been amended.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1, 17-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Land (US 2,454,515).

Regarding claim 1, Land teaches a polarizer composed of a film comprising a structure in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in a polymer matrix (column 10, lines 13-72), where the polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph), and the film is uniaxially stretched (column 2, lines 45-55, uniaxial, column 3, lines 38-42).

Regarding claims 17-18, Land teaches a polarizing plate, which is an optical film, in which a transparent protective layer is provided on at least one surface of the polarizer (to protect from contact with moisture by laminating it between plastic sheets, column 4, lines 49-52).

4. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Land as applied to claims 1, 17-18 above, and as evidenced by Thomas (US 3,281,344).

Land teaches the polarizer film product comprising a structure in which fine metallic particles are dispersed in a polymer matrix, wherein a polymer forming the polymer matrix is a translucent polymer having a light transmittance of 88% or more when measured thereof with a thickness of 1 mm, and the film is uniaxially stretched, as described above. In addition, Land teaches that a domain is formed with fine metallic

particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52). Land teaches that the film is stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52). Thus the anisotropy of the metallic particles during conversion is minimized. The presence of the polymer matrix prevents the metallic particles from agglomerating to form larger particles, so that the metallic particles in the polymer matrix of Land inherently have an average particle diameter within the claimed range of 100 nm or less and an aspect ratio within the claimed range of 2 or less, as evidenced by Thomas.

Thomas teaches that when a polymer matrix is immersed in a dilute solution containing metal salt (decomposition of an iron-organic compound in the presence of an inert solvent and a polymer of at least 10,000 molecular weight, column 1, lines 55-60), the polymer matrix prevents the metallic particles formed in situ, from agglomerating to form larger particles (column 2, lines 32-37) so that the metallic particles have an average particle diameter within the claimed range of 100 nm or less and an aspect ratio within the claimed range of 2 or less.

5. Claims 8-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Land (US 2,454,515).

Land teaches a polarizer that is a film in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in an organic matrix (column 10, lines 13-72), having a birefringence in the film plane (plane polarizing film, oriented with the long axis of the

particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74), wherein the organic matrix is formed with a polymer matrix (column 10, lines 13-72), a polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph), and the film is uniaxially stretched (column 2, lines 45-55, uniaxial, column 3, lines 38-42).

Therefore, although Land fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth; or more specifically, that if an azimuth of the incident polarization plane is 0 degrees when an absorption peak wavelength of an absorption spectrum that is measured is the longest wavelength, defined as λ1, when the azimuth is gradually increased from 0 degrees, a value of the absorption peak wavelength shifts to the short wavelength side in accordance with the increase and when the azimuth is 90 degrees, a value of the absorption peak is the shortest wavelength, defined as λ2, satisfying a relation of (λ1 – λ2) = 10 to 50 nm, these properties are presumed to be inherent since Land teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed

properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

6. Claims 4-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Hikmet (US 6,833,166).

Regarding claim 4, Hikmet teaches a polarizer (column 5, line 67) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in a matrix formed with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1).

Regarding claim 5, Hikmet teaches that the liquid crystalline material is uniaxially aligned (uniaxial orientation of the molecules induced, column 5, lines 25-30).

Regarding claim 6, Hikmet teaches that the liquid crystalline material is a liquid crystal polymer (polymerized film, column 5, lines 45-50).

7. Claims 8-11, 13-16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hikmet (US 6,833,166), as evidenced by Thomas (US 3,281,344).

Hikmet teaches a polarizer (column 5, line 67) that is a film (polymerized film, column 5, lines 45-50) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in an organic matrix having a birefringence in the film plane (in a mixture containing 10 wt.% of diacrylate C6M, the high birefringence is sustained upon polymerization, column 2, lines 55-57, acrylates C5A and C6M, column 5, lines 25-28), wherein the organic matrix is formed

with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1) which is a liquid crystal polymer (polymerized film, column 5, lines 45-50). Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is converted to insoluble free metallic particles (column 3, lines 50-51) which are of nanometer size small enough to be quantum dots (column 1, lines 14-20). The presence of the organic matrix prevents the insoluble free metallic particles from agglomerating to form larger particles, so that the free metallic particles in the organic matrix of Hikmet inherently have an average particle diameter within the claimed range of 100 nm or less and an aspect ratio within the claimed range of 2 or less, as evidenced by Thomas.

Thomas teaches that when an organic matrix is immersed in a dilute solution containing metal salt (decomposition of an iron-organic compound in the presence of an inert solvent and a polymer of at least 10,000 molecular weight, column 1, lines 55-60), the organic matrix prevents the free metallic particles formed in situ, from agglomerating to form larger particles (column 2, lines 32-37) so that the free metallic particles have an average particle diameter within the claimed range of 100 nm or less and an aspect ratio within the claimed range of 2 or less.

Therefore, although Hikmet fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an

alteration in the azimuth; or more specifically, that if an azimuth of the incident polarization plane is 0 degrees when an absorption peak wavelength of an absorption spectrum that is measured is the longest wavelength, defined as λ1, when the azimuth is gradually increased from 0 degrees, a value of the absorption peak wavelength shifts to the short wavelength side in accordance with the increase and when the azimuth is 90 degrees, a value of the absorption peak is the shortest wavelength, defined as λ2, satisfying a relation of (λ1 – λ2) = 10 to 50 nm, these properties are presumed to be inherent since Hikmet, as evidenced by Thomas, teaches the claimed polarizer as described above. Furthermore, Hikmet teaches that the organic matrix is synthesized from liquid crystalline monomers which have at least one acryloyl group and a nematic liquid crystal phase (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 25-27, Fig. 1), which are the same as or contain the same functional characteristics as the liquid crystal monomer having one acryloyl group and a nematic liquid crystal phase that is disclosed by Applicant (Example 3, specification, page 56, lines 15-20). Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Land as applied to claims 1, 17-18 above.

Land teaches the polarizer film product comprising a structure in which fine metallic particles are dispersed in a polymer matrix, wherein a polymer forming the polymer matrix is a translucent polymer having a light transmittance of 88% or more when measured thereof with a thickness of 1 mm and the film is uniaxially stretched, as described above. Land teaches the step of uniaxially stretching the film after the step of forming the film (column 2, lines 45-55, uniaxial, column 3, lines 38-42). Land fails to teach a fabrication method for forming the polarizer, that comprises the step of forming a film with a mixed solution obtained by dispersing fine metal particles in a solution containing a translucent polymer having a light transmittance of 88% or more when measured thereof with a thickness of 1 mm.

However, the generic step of forming a film from a mixed solution obtained by dispersing particles in a solution containing the matrix material, is a step that is

notoriously well known to one of ordinary skill in the art, used for the purpose of forming very thin film composites.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a step of forming a film with a mixed solution obtained by dispersing the fine metal particles in a solution containing the translucent polymer, in the fabrication method for the polarizer film of Land, in order to form a very thin film polarizer composite, as is well known in the art.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hikmet as applied to claims 4-6 above.

Hikmet teaches the polarizer film product in which the fine metal particles are dispersed in a matrix formed with the liquid crystalline material, as described above. Hikmet fails to teach a fabrication method of forming the polarizer, that comprises the step of forming a film with a mixed solution obtained by dispersing fine metal particles in a solution containing liquid crystalline material.

However, the generic step of forming a film from a mixed solution obtained by dispersing particles in a solution containing the matrix material, is a step that is notoriously well known to one of ordinary skill in the art, used for the purpose of forming very thin film composites.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a step of forming a film with a mixed solution obtained by dispersing the fine metal particles in a solution containing the liquid

crystalline material, in the fabrication method for the polarizer film of Hikmet, in order to form a very thin film polarizer composite, as is well known in the art.

10. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land as applied to claims 1, 17-18 above, and further in view of Oshima (US 4,268,127).

Land teaches the polarizing plate optical film in which a transparent protective layer is provided on at least one surface of the polarizer film comprising a structure in which fine metallic particles are dispersed in a polymer matrix, wherein a polymer forming the polymer matrix is a translucent polymer having a light transmittance of 88% or more when measured thereof with a thickness of 1 mm and the film is uniaxially stretched, as described above. Land fails to teach the polarizing plate as a laminate in an optical film with an additional function, or that the polarizing plate optical film containing the polarizer is disposed in an image display.

However, Oshima teaches that when a polarizing plate containing a polarizer is disposed in an image display (polarizer, column 1, lines 7-18), a light diffusing layer is laminated to the polarizing plate (a semi-transparent resin layer 101 composed of a polyester film 111 and light diffusing material 13 is bonded to polarizing layer 103 via adhesive layer, polarizing layer 103 composed of a polarizer element 131 and a protective coating 132, column 5, lines 35-47), for the purpose of providing the desired uniform polarized light (column 1, lines 55-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have laminated the polarizing plate of Land with a

diffusing layer, and to have disposed the laminate in an image display, in order to provide the image display with the desired uniform polarized light, as taught by Oshima.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye, can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Hon.

Sow-Fun Hon

09/17/07